

DATA EVALUATION RECORD

SODIUM FERRIC ETHYLENEDIAMINETETRAACETATE

(Slug & Snail Killer)

STUDY TYPE: Waiver Requests for Ecotoxicity Studies

Avian Dietary Toxicity (OPPTS 850.2200)

Fish Acute Toxicity (OPPTS 850.1075)

Freshwater Aquatic Invertebrate Testing (OPPTS 885.4240)

Non-Target Plant Testing (OPPTS 885.4300)

Non-Target Insect Testing (OPPTS 885.4340)

MRID 46441502

Prepared for
Biopesticides and Pollution Prevention Division
Office of Pesticide Programs
U.S. Environmental Protection Agency
1801 Bell Street
Arlington, VA 22202

Prepared by
Toxicology and Hazard Assessment Group
Life Sciences Division
Oak Ridge National Laboratory
Oak Ridge, TN 37830
Task Order No. 05-021

Primary Reviewer:

Eric B. Lewis, M.S.

Signature: _____

Date: _____

Secondary Reviewers:

Anthony Q. Armstrong, M.S.

Signature: _____

Date: _____

Robert H. Ross, M.S., Group Leader

Signature: _____

Date: _____

Quality Assurance:

Lee Ann Wilson, M.A.

Signature: _____

Date: _____

Disclaimer

This review may have been altered subsequent to the contractor=s signatures above.

DATA EVALUATION RECORD

EPA Secondary Reviewer: Clara Fuentes

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| STUDY TYPE: | Waiver Requests for Ecotoxicity Studies: Avian Dietary Toxicity (OPPTS 850.2200) Fish Acute Toxicity (OPPTS 850.1075) Freshwater Aquatic Invertebrate Testing (OPPTS 885.4240) Non-Target Plant Testing (OPPTS 885.4300) Non-Target Insect Testing (OPPTS 885.4340) |
| MRID NO: | 46441502 |
| DP BARCODE: | DP316206 |
| CASE NO: | Not provided |
| SUBMISSION NO: | Not provided |
| TEST MATERIAL: | Slug & Snail Killer (a.i., 6.00% ferric sodium EDTA) |
| STUDY NO: | Not provided |
| SPONSOR: | Platte Chemical Co., 419 18 th Street, Greeley, CO 80632 |
| TESTING FACILITY: | Not reported |
| TITLE OF REPORT: | MultiGuardJ Snail and Slug Control, MultiGuardJ Snail and Slug Control Technical, MultiGuardJ Snail and Slug Control End-Use Product, Containing the Active Ingredient Sodium Ferric EDTA, Waiver Request of Requirement for Further Testing |
| AUTHOR: | Platte Chemical Co., Greeley, CO |
| STUDY COMPLETED: | September 18, 2002 |
| CONFIDENTIALITY CLAIMS: | None |
| GOOD LABORATORY PRACTICE: | A signed GLP statement was included. GLP standards are not applicable to this submission. |
| CONCLUSION: | The reviewer finds the information submitted in support of the requested ecotoxicity waivers to be acceptable. |

Product Description

Slug & Snail Killer (a.i., 6.00% sodium ferric EDTA) is an end use product to be used to control slugs and snails in and around agricultural crops, turf, ornamentals, and home gardens.

Waiver Requests

The registrant is requesting waivers for the following ecotoxicity studies:

Avian Dietary Toxicity (OPPTS 850.2200)
Fish Acute Toxicity (OPPTS 850.1075)
Freshwater Aquatic Invertebrate Testing (OPPTS 885.4240)
Non-Target Plant Testing (OPPTS 885.4300)
Non-Target Insect Testing (OPPTS 885.4340)

Rationale

US FDA has approved the use of up to 240 ppm disodium EDTA as an additive in finished animal feed. In a study reported in the public literature, the addition of 300 ppm EDTA to prepared diet containing 5 ppm added zinc markedly improved chick growth, nearly comparable to growth of chicks fed diet containing 60 ppm zinc without added EDTA.

The iron in sodium ferric EDTA interacts with the hemocyanin in the bloodstream of molluscs and crustaceans. The blood of vertebrate animals contains hemoglobin, which is iron-based, rather than the copper-based hemocyanin. There have been no reported effects on iron-based systems. Since both birds and fish are vertebrate animals, field application of sodium ferric EDTA at label rates should present little or no risk from ingesting the pellets. Additionally, exposure of fish should not occur when label directions are followed, as the product is a pelleted bait applied directly to soil.

Freshwater invertebrate testing is not needed. As stated above, the iron in sodium ferric EDTA would be toxic to *Daphnia*, since they are crustaceans. Exposure of daphnids and other crustaceans should not occur when label directions are followed, as the product is a pelleted bait applied directly to soil.

EDTA is used in specialty fertilizers to chelate inorganic sources of iron and other elements. In soil, the EDTA is eventually microbially degraded, and the cations released as a result act as inorganic ions. Tomato plants grown for 130 days in hydroponic solution containing ¹⁴C-labelled EDTA contained ¹⁴C-labelled amino acids in addition to the ¹⁴C-EDTA, indicating EDTA was slowly decomposed by the plants. In another study using tomato plants grown in solution containing labeled iron chelate (⁵⁹Fe-¹⁴ C-EDTA), nearly all the iron, but only about 60% of the EDTA, was recovered after 24 days, indicating that the EDTA was decomposed by the plants. No phytotoxic effects were reported in this study.

The registrant's testing of the effect of sodium ferric EDTA pellets on insects showed that *Dicranolaius bellulus* (Melyrid beetle), *Harmonia conformis* (ladybird beetle), and *Notonomus gravis* (carabid beetle) were not affected. Sodium ferric EDTA was found to be toxic to *Oniscus asellus* (sowbug), *Armadillidium vulgare* (pillbug), and *Porcellio laevis* (common woodlouse); however, these are land-living crustaceans in which the oxygen carrier is hemocyanin. Due to the

selectivity of sodium ferric EDTA for copper-based blood systems, effects on non-target insects are not expected.

Reviewer=s Comments

The reviewer finds the information submitted in support of the requested waivers to be acceptable.